growing a mother shim on said photoresist with said pattern in it from said photoresist,

transferring said pattern from the mother shim to multiple sister shims,

transferring said pattern from at least one of said sister shims to a die having a surface hardness of at least about 200 kg/mm^2,

providing a metal article to be impressed with said holographic image, said article having a surface hardness of at least about 50 kg/mm^2, and

pressing said die against a surface on said metal article to transfer said holographic image into a surface on said metal article. --

Remarks

Applicants wish to thank Examiner Angebranndt for his thoughtful comments and assistance in the telephone interview with Applicants' attorney on December 9, 2002, and the indication that the declarations in Paper 6 obviate the rejections of Claims 3, 5, 6 and 9-25. An amended Claim 1 is presented in this Amendment to incorporate the limitations of Claims 5 and 6 into Claim 1 and revise the numerical limitations respecting the depth of the etched pattern and the surface hardness of the die. Support for the 2-3 micron depth of the etched pattern is found on page 6, lines 26-29, of Applicants' specification, and support for the 110-125 kg/mm^2 surface hardness of the die (before coating thereof) is found on page 9, lines 17-20, of the specification.

New Claims 27 and 28 are presented herein to place this application in condition for an interference to be declared with certain claims in Mentz et al. 6,017,657. Claim 27 is substantially identical to original Claim 1 as filed in this application except for correction of a typographical error (changed "o" to "of" in line 5) and incorporation of original Claim 7 therein as suggested by Examiner Angebranndt. Claim 28 is identical to original Claim 1 as filed except for the correction of the typographic error.

Applicants have enclosed herewith a new comparison of Claims 1 and 6 in the Mentz et al. patent with the new Claims 27 and 28 presented herein. The comparison includes explanations of why the claims in the patent and this application are to substantially the same subject matter.

Applicants also enclose a new Declaration of David W. Brownlee in accordance with 37 C.F.R. 1.608(a) to provide the required *Prima Facie* Showing by Applicants that there is a basis upon which Applicants are entitled to a judgment relative to Mentz et al.

Proposed Count(s): Applicants propose that Claims 1 and 6 in Mentz et al. be the counts in the interference. The two claims differ primarily in that Claim 1 is limited to transfer of a hologram to an unheated aluminum can or can stock substrate whereas Claim 6 of Mentz et al. is broader in its recitation of any "unheated aluminum substrate". Applicants believe that they are entitled to a broader count based on Claim 6 of Mentz et al., as well as a narrow count based on Claim 1 of that patent.

Applicants respectfully submit that this Amendment and the Declaration enclosed herewith place this Application in condition for the declaration of an interference between their Application and Mentz et al. 6,017,657, and request that such an interference be declared.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned **"Version with Markings to Show Changes Made."**

Respectfully submitted,

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Version with Markings to Show Changes Made

Claim 1 has been amended as shown below.

1. *(thrice amended)* A method of applying a holographic image to the surface of an article made of hard temper metal comprising:

providing a photoresist coated plate,

etching a holographic pattern in the photoresist with said pattern etched to a depth of at least about 2-3 microns in the photoresist,

growing a mother shim on said photoresist with said pattern in it from said photoresist,

transferring said pattern from the mother shim to multiple sister shims,

pressing at least one of said sister shims against a die having a surface hardness of at least about [200] 110-125 kg/mm^2 to transfer said pattern from said at least one sister shim to said die surface,

hardening the surface of said die by a process selected from ion implantation and coating the surface with diamond-like carbon, amorphous diamond coating or carbon nitride to a surface hardness of at least about 545 kg/mm^2;

providing a metal article to be impressed with said holographic image, said article having a surface hardness of at least about 50 kg/mm^2, and

pressing said die against a surface on said metal article to transfer said holographic image into a surface on said metal article.

Claims 5, 6 and 26 have been cancelled.

Claims 27 and 28 have been added as follows:

-- 27. A method of applying a holographic image to the surface of an article made of hard temper aluminum comprising:

providing a photoresist coated plate,

etching a holographic pattern in the photoresist with said pattern etched to a depth of at least about 3 microns in the photoresist,

growing a mother shim on said photoresist with said pattern in it from said photoresist,

transferring said pattern from the mother shim to multiple sister shims,

transferring said pattern from at least one of said sister shims to a die having a surface hardness of at least about 200 kg/mm^2,

providing a hard temper aluminum alloy can body to be impressed with said holographic image, said can body having a surface hardness of at least about 50 kg/mm^2, and

pressing said die against a surface on said can body to transfer said holographic image into a surface on said can body.

28. A method of applying a holographic image to the surface of an article made of hard temper metal comprising:

providing a photoresist coated plate,

etching a holographic pattern in the photoresist with said pattern etched to a depth of at least about 3 microns in the photoresist,

growing a mother shim on said photoresist with said pattern in it from said photoresist,

transferring said pattern from the mother shim to multiple sister shims,

transferring said pattern from at least one of said sister shims to a die having a surface hardness of at least about 200 kg/mm^2,

providing a metal article to be impressed with said holographic image, said article having a surface hardness of at least about 50 kg/mm^2, and

pressing said die against a surface on said metal article to transfer said holographic image into a surface on said metal article. --

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Claim Comparison

Mentz et al. 6,017,657	Application Serial No. 09/473,246	Explanation of Why the Claims Are to Substantially the Same Subject Matter
1. A method for preparing an aluminum article having an embossed hologram thereon, comprising	27. A method of applying a holographic image to the surface of an article made of hard temper aluminum comprising	Substantially identical wording.
preparing a surface-relief holographic master by exposing a photo resist layer to an interfering light pattern and developing;	providing a photoresist coated plate, etching a holographic pattern in the photoresist with said pattern etched to a depth of at least about 3 microns in the photoresist,	Applicants' specification decribes "etching" as being done with two or more beams of light (page 6, lines 21-24). The depth of the pattern recited in Applicants' claim overlaps the count which is unlimited as to coating depth.
electroforming a layer of metal onto the holographic master to prepare a negative master, removing the negative master from the holographic master and electroforming metal onto the negative master surface to form a positive reproduction of the negative master;	growing a mother shim on said photoresist with said pattern in it from said photoresist,	Growing a mother shim as claimed by Applicants is described in their specification (page 7, lines 9-20) and is identical to that recited in the Mentz et al. claim.
forming an embossing shim by then electroforming nickel in a hardening bath of composition and under conditions effective to produce a layer of nickel of enhanced hardness and durability; and	transferring said pattern from the mother shim to multiple sister shims,	Applicants' specification describes the hologram surface of the sister shim as "hardened" and includes ion implantation as one way to provide a hardened shim (page 8, lines 4-5). Hardening of nickel is well known and there are many ways to harden nickel including ion implantation and the method disclosed in Marti, J.L. and Lenza, G.P., "Hardeness of Sulfamate Nickel Deposits", Plating, April 1969 (copy attached).
pressing the embossing shim against the surface of an unheated aluminum can or can stock substrate to transfer thereto the intended hologram.	transferring said pattern from at least one of said sister shims to a die having a surface hardness of at least about 200 kg/mm^2, providing a hard temper aluminum can body to be	The surface hardness of the die as recited in Applicants' claim is same range as is used by Mentz et al. as disclosed, for example, in column 10, liens 46-55 (200-5,000 kg/mm^2), and the surface hardness of aluminum cans is typically at least 50 kg/mm^2 as recited in Applicants' claim. Applicants' claim does

	impressed with said holographic image, said can body having a surface hardness of at least about 50 kg/mm^2, and pressing said die against a surface on said can body to transfer said holographic image into a surface on said can body.	not recite "unheated", but this is an important aspect of Applicants' method. For example, Applicants state on page 4, lines 21-23, in their specification that "A further object is to provide a method and apparatus for decorating cans with holograms and decorative coatings at high speeds for mass production of aluminum cans with without adversely affecting the mechanical properties of the cans." The specification further states on page 5, lines 29-31, that "In order to be used in commercial packaging, the yield strength of the D&I cans must not be significantly reduced during decoration as can result from heating...."

Claim Comparison

Mentz et al. 6,017,657	Application Serial No. 09/473,246	Explanation of Why the Claims Are to Substantially the Same Subject Matter
6. A method for preparing an aluminum article having an embossed hologram thereon, comprising	28. A method of applying a holographic image to the surface of an article made of hard temper metal comprising	Substantially identical wording.
preparing a surface-relief holographic master by exposing a photo resist layer and developing;	providing a photoresist coated plate, etching a holographic pattern in the photoresist with said pattern etched to a depth of at least about 3 microns in the photoresist,	Applicants' specification decribes "etching" as being done with two or more beams of light (page 6, lines 21-24). The depth of the pattern recited in Applicants' claim overlaps the count which is unlimited as to coating depth.
electroforming a layer of metal onto the holographic master to prepare a negative master, removing the negative master and electroforming metal onto the negative master surface to form a positive reproduction of the negative master;	growing a mother shim on said photoresist with said pattern in it from said photoresist,	Growing a mother shim as claimed by Applicants is described in their specification (page 7, lines 9-20) and is identical to that recited in the Mentz et al. claim.
forming an embossing shim by then electroforming nickel in a hardening bath of composition and under conditions effective to produce a layer of nickel of enhanced hardness and durability; and	transferring said pattern from the mother shim to multiple sister shims,	Applicants' specification describes the hologram surface of the sister shim as "hardened" and includes ion implantation as one way to provide a hardened shim (page 8, lines 4-5). Hardening of nickel is well known and there are many ways to harden nickel including ion implantation and the method disclosed in Marti, J.L. and Lenza, G.P., "Hardeness of Sulfamate Nickel Deposits", Plating, April 1969 (copy attached).
pressing the embossing shim against the surface of an unheated aluminum substrate to transfer thereto the intended hologram.	transferring said pattern from at least one of said sister shims to a die having a surface hardness of at least about 200 kg/mm^2, providing a metal article to be impressed with said holographic image, said	The surface hardness of the die as recited in Applicants' claim is same range as is used by Mentz et al. as disclosed, for example, in column 10, liens 46-55 (200-5,000 kg/mm^2), and the surface hardness of aluminum cans is typically at least 50 kg/mm^2 as recited in Applicants' claim. Applicants' claim does not recite "unheated", but this is an important

	article having a surface hardness of at least about 50 kg/mm^2, and pressing said die against a surface on said metal article to transfer said holographic image into a surface on said metal article.	aspect of Applicants' method. For example, Applicants state on page 4, lines 21-23, in their specification that "A further object is to provide a method and apparatus for decorating cans with holograms and decorative coatings at high speeds for mass production of aluminum cans with without adversely affecting the mechanical properties of the cans." The specification further states on page 5, lines 29-31, that "In order to be used in commercial packaging, the yield strength of the D&I cans must not be significantly reduced during decoration as can result from heating...."